WHAT IS CLAIMED IS:

1. A system for managing allocation of computer resources among applications operating on a computer, based upon at least one user-defined goal for at least one application and application performance information related to the one application, the system comprising:

a calculator that determines an allocation request value using a proportional factor, an integral factor, and a derivative factor, wherein the factors are calculated from the goal and the performance information; and

an arbiter that is operative to adjust the allocation request value into an adjusted allocation value when the allocation request value and allocation request values associated with other applications exceeds a predetermined value.

2. The system of claim 1, wherein:

the proportional factor includes a proportional constant and a proportional variable, wherein the proportional constant is a user-selectable input, and the proportional variable is determined from the goal and the performance information;

the integral factor includes a integral constant and a integral variable, wherein the integral constant is a user-selectable input, and the integral variable is determined from the goal and the performance information; and

the derivative factor includes a derivative constant and a derivative variable, wherein the derivative constant is a user-selectable input, and the derivative variable is determined from the goal and the performance information.

3. The system of claim 2, wherein:

the proportional factor is $(KP \times P_i')$, wherein KP is the proportional constant and P_i' is the proportional variable, and $P_i' = P_i - V_i$., wherein P_i is performance information and V_i is the goal;

the integral factor is $(KI \times I_i)$, wherein KI is the integral constant and I_i is the integral variable, and $I_i = (I_i old \times IH_i) + P_i'$, $I_i old$ is a previous value for I_i, and IH_i is an integral history constant which is a user-selectable input, and P_i' is the proportional variable; and

the derivative factor is $(KD \times D_i)$, wherein KD is the derivative constant and D_i is the derivative variable, and $D_i = (P_i' - P_i' old)/t$, wherein P_i' is the proportional variable, $P_i' old$ is a previous value for P_i', and t is a time between the performance information used to calculate P_i' and previous performance information used to calculate $P_i' old$.

4. The system of claim 3, wherein:

the allocation request value, R_i, is determined by $R_i = (KP \times P_i') + (KD \times D_i) + (KI \times I_i) + R_i old$, wherein $R_i old$ is a previous value for R_i.

5. The system of claim 1, wherein a number format for each of the goal, the performance information, and the allocation request value is selected from the group consisting of:

a floating point number, and an integer number.

6. The system of claim 1, wherein the allocation request value is a floating point number, the system further comprising:

a rounder that uses cumulative rounding to adjust the floating point allocation request value into an integer number.

7. The system of claim 1, wherein:

the performance information is generated by a performance monitor that monitors a characteristic of the application associated with the goal.

8. The system of claim 1, wherein:

the allocation request value is used by a process resource manager to allocate computer processing resources among the applications operating on the computer.

9. The system of claim 1, wherein the one application is one of a plurality of applications, and each application of the plurality has an associated user-selectable priority and an allocation request value, wherein:

the arbiter determines whether each application of the plurality of applications having the same priority can be allocated resources to equal its associated allocation request value, if so, then the arbiter forms the adjusted allocation request value for each application by equaling the adjusted allocation request value to the allocation request value, and if not, then the arbiter determines whether each application of the plurality of applications having the same priority can be allocated resources to equal a target value.

10. The system of claim 9, wherein:

the target value is selected by the arbiter from the lowest of a previously allocated request value, which has not been previously selected as a target value, and an allocation request value of an application of the plurality of applications having the same priority, which has not been previously selected as a target value.

11. The system of claim 9, wherein:

the arbiter forms the adjusted allocation request value for each application by equaling the adjusted allocation request value to the target value, if the arbiter determines that each application of the plurality of applications having the same priority can be allocated resources to equal the target value.

12. A computer program product having a computer readable medium having computer program logic recorded thereon for managing allocation of computer resources among applications operating on a computer, based upon at least one user-defined goal for at least one application and application performance information related to the one application, the computer program product comprising:

code for determining an allocation request value using a proportional factor, an integral factor, and a derivative factor, wherein the factors are calculated from the goal and the performance information; and

code for adjusting the allocation request value, and is operative when the allocation request value and allocation request values associated with other applications exceeds a predetermined value.

13. The computer program product of claim 12, wherein:

the proportional factor includes a proportional constant and a proportional variable, wherein the proportional constant is a user-selectable input, and the proportional variable is determined from the goal and the performance information;

the integral factor includes a integral constant and a integral variable,

wherein the integral constant is a user-selectable input, and the integral variable is determined from the goal and the performance information; and

the derivative factor includes a derivative constant and a derivative variable,

wherein the derivative constant is a user-selectable input, and the derivative variable is determined from the goal and the performance information.

14. The computer program product of claim 13, wherein:

the proportional factor is $(KP \times P_i')$, wherein KP is the proportional constant and P_i' is the proportional variable, and $P_i' = P_i - V_i$., wherein P_i is performance information and V_i is the goal;

the integral factor is $(KI \times I_i)$, wherein KI is the integral constant and I_i is the integral variable, and $I_i = (I_i old \times IH_i) + P_i'$, $I_i old$ is a previous value for I_i, and IH_i is an integral history constant which is a user-selectable input, and P_i' is the proportional variable; and

the derivative factor is $(KD \times D_i)$, wherein KD is the derivative constant and D_i is the derivative variable, and $D_i = (P_i' - P_i' old)/t$, wherein P_i' is the proportional variable, $P_i' old$ is a previous value for P_i', and t is a time between the performance information used to calculate P_i' and previous performance information used to calculate $P_i' old$.

15. The computer program product of claim 14, wherein:

the allocation request value, R_i, is determined by $R_i = (KP \times P_i') + (KD \times D_i) + (KI \times I_i) + R_i old$, wherein $R_i old$ is a previous value for R_i.

16. The computer program product of claim 12, wherein the one application is one of a plurality of applications, and each application of the plurality has an associated user-selectable priority, wherein the code for adjusting the allocation request value comprises:

code for determining whether each application of the plurality of applications having the same priority can be allocated resources to equal its associated allocation request value, if so, then the adjusted allocation request value for each application is formed by equaling the adjusted allocation request value to the allocation request value, and if not, then whether each application of the plurality of applications having the same priority can be allocated resources to equal a target value is determined;

wherein the target value is selected from the lowest of a previously allocated request value, which has not been previously selected as a target value, and an allocation request value of an application of the plurality of applications having the same priority, which has not been previously selected as a target value.

17. The computer program product of claim 16, wherein the code for adjusting the allocation request value further comprises:

code for forming the adjusted allocation request value for each application by equaling the adjusted allocation request value to the target value, if each application of the plurality of applications having the same priority can be allocated resources to equal the target value.

18. A method for managing allocation of computer resources among applications operating on a computer, based upon at least one user-defined goal for at least one application and application performance information related to the one application, the method comprising the steps of:

determining an allocation request value using a proportional factor, an integral factor, and a derivative factor, wherein the factors are calculated from the goal and the performance information; and

adjusting the allocation request value, when the allocation request value and allocation request values associated with other applications exceeds a predetermined value.

19. The method of claim 18, wherein the one application is one of a plurality of applications, and each application of the plurality has an associated user-selectable priority, wherein the step of adjusting the allocation request value comprises the step of:

determining whether each application of the plurality of applications having the same priority can be allocated resources to equal its associated allocation request value, if so, then the adjusted allocation request value for each application is formed by equaling the adjusted allocation request value to the allocation request value, and if not, then whether each application of the plurality of applications having the same priority can be allocated resources to equal a target value is determined,

wherein the target value is selected from the lowest of a previously allocated request value, which has not been previously selected as a target value, and an allocation request value of an application of the plurality of applications having the same priority, which has not been previously selected as a target value.

20. The method of claim 19, wherein the step of adjusting the allocation request value further comprises the step of:

forming the adjusted allocation request value for each application by equaling the adjusted allocation request value to the target value, if each application of the plurality of applications having the same priority can be allocated resources to equal the target value.